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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/820,973

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Steve W. Braun

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EXAMINER

WONG, ERIC K

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/820,973

Applicant(s)

BRAUN ET AL.

Examiner

Eric Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-85 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-85 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 5/21/05, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of United States Patent Number 5,500,857 to Nakata in further view of United States Patent Number 5,866,898 to Hodgson et al.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6, and 9-36, 41-42, 51-55 and 58-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Number 5,500,857 to Nakata, and further in view of United States Patent Number 5,866,898 to Hodgson et al.

As to claims 1, 3, 6, 19, 27-32, 51, 55, 58-60, 63-64, 69, 74-82, and 84-85, Nakata discloses a bi-directional optical transport system comprising:

- A light transmission line (including a bi-directional bus architecture) for transmitting light bi-directionally (Column 5, lines 35-37);
- As to claims 19-20, a fiber optical bus is used (column 10, line 9);
- A plurality of nodes, connected in series by the light transmission line for receiving, extracting, and passing signal light (column 2, line 59), each node comprising:

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- Data terminal equipment for issuing and receiving an electrical signal (column 5, lines 5-21);
- An electro-optical interface device, associated with the data terminal equipment, for converting electrical signals issued by the associated data terminal to signal light for insertion onto the light transmission line and for converting signal light, extracted from the light transmission line into electrical signals to be received by the associated data terminal (column 5, lines 5-21);
- A translation logic device connected between the electrical optical interface device and the data terminal equipment for performing required protocol translation for the data terminal equipment (column 6, line 44);
- An optical interface device (5, figure 5), connected to the electro-optical interface device and the light transmission line, for extracting signal light from the light transmission line to be converted into electrical signals by the electro-optical interface device for receipt by the data terminal equipment, for inserting, onto the light transmission line, signal light received from the electro-optical interface device and for passing signal light bi-directionally on the light transmission line (column 5, lines 5-21);

However, Nakata fails to explicitly disclose an optical fiber amplifier and pump source doped with a material that is excited by excitation light and emits light having the same wavelength as the light signals when radiated with light signals transmitted bi-directionally by the fiber optic line.

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Hogdson et al. teaches the use of Erbium doped fiber amplifiers with a pump source comprising a laser for use in a bi-directional optical transmission system in order to reduce costs, complexity and to maintain an optical signal that spans long distances with minimal errors (figure 9 and column 8, lines 43-47).

Since Nakata and Hogdson et al. are both from the same field of endeavor, the purpose disclosed by Hogdson et al. to maintain optical signals through long distances would have been recognized in the pertinent art of Nakata.

It would have been obvious to one having ordinary skill at the time the invention was made to a person having ordinary skill in the art to use the Erbium doped fiber amplifier of Hogdson et al. in Nakata for the purpose of reducing costs, equipment, and to maintain optical signal integrity with minimal losses.

As to claims 2 and 42, Nakata discloses a system where the data terminal equipment comprises one of a computer, video or telephone device having different protocol requirements (column 2, line 58 – column 2, line 36).

As to claim 9, couplers are used (column 5, lines 5-21).

As to claims 10 and 15, couplers (8,9) together would form a 4 port bi-directional coupler.

As to claims 13, 14 and 18, multiple light transmission lines are used.

As to claims 21-22, 53, and 68 a token ring system is used with redundancy (figure 7).

As to claims 34-36, 65-67, 71-72, a wavelength tunable filter is disclosed (column 5, lines 22-27).

As to claim 41, terminal equipment is disclosed (figure 7).

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As to claim 54, the electrical-optical converter comprises a tunable laser.

As to claims 23-25, multiple optical – electrical converters are disclosed.

As to claims 26, 70 and 83, signals are routed in both directions.

As to claims 33 and 73, demand-assign wavelength-division multiplexing schemes are used.

As to claims 52, and 61-62, each node in the ring structure is a terminal workstation.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata in view of Hogdson et al. as applied to claim 1 above.

Nakata in view of Hogdson et al. disclose an optical transport system that operates at various wavelengths and a pump wavelength of 1480nm, but fails to explicitly disclose the specific wavelengths as claimed. It is noted that the claimed 1480 nanometer and 1550 nanometer wavelengths are commonly known and used in the art for optical communications and incorporating this wavelength to ensure proper operation in different applications would be commonly known in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the wavelengths as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata in view of Hogdson et al. as applied to claim 1 above, and further in view of United States Patent Number 4,959,837 to Fevrier et al.

Nakata in view of Hogdson et al. disclose an optical transport system with an Erbium doped and pumped amplifier, but fail to explicitly disclose the length of the optical amplifier fiber is set as a function of the amount of amplification required, namely 2 meters. It is noted that it is commonly known in the art to vary the length of a doped amplification fiber to determine the amount of gain needed for that specific application.

Fevrier et al. teaches that it is commonly known in the art to vary the length of doped amplification fiber in order to achieve specific gain values, specifically in the prior art disclosed, 2 meters in length (column 3, line 32).

Since Nakata, Hogdson et al. and Fevrier et al. are all from the same field of endeavor, varying the length of a doped optical amplification fiber disclosed by Fevrier et al. would have been recognized in the pertinent art of Nakata in view of Hogdson et al.

It would have been obvious to one having ordinary skill at the time the invention was made to use the method taught by Fevrier et al. to vary the length of the doped optical amplification fiber in Nakata in view of Hogdson et al. in order to minimize errors and to provide proper amplification and transmission of an optical signal.

5. Claims 37-40, 43-50 and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata in view of Hogdson et al. as applied to claim 1 above.

Nakata in view of Hogdson et al. discloses a bi-directional optical transport system but fails to specifically disclose the type of signals being converted and transmitted as claimed. It is noted however, that Nakata nor Hogdson et al. specifically limits the type of signals to be used.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use specific signals as claimed, since it has been held to be within the

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general skill of a worker in the art to select a known type of material (signal) on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. It is respectfully noted that applicant has not disclosed any criticality in the usage of specific types of signals to be converted. By merely selecting from a list of signal types is a general electrical engineering practice to provide for the correct type of signal transmission and to provide compatibility between components with minimal errors. Examiner's contention of this obvious choice in design can be overcome if applicant establishes unexpected results by using a specific type of signal as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


EW
John D. Lee
Primary Examiner